M-2000
FS-25

SERVICE MANUAL

US Model
AEP Model
UK Model

SONY
EJECT
◄◄REW
■STOP
►PLAY
►►FF
SPEED CONTROL
VOLUME
MIC

SPECIFICATIONS

Tape	MICROCASSETTE™ (normal position type)
Track system	2-track 1-channel monaural
Tape speed	2.4 cm/sec. (15/16 ips), 1.2 cm/sec. (15/32 ips)
Tape speed control	−10% to +50%
Auto back space	Approx. 0/1/3 sec.
Frequency response	250—4,000 Hz (at 2.4 cm position)
Speaker	5 cm (2 inches) dia.
Power output	300 mW
Input	MIC (PLUG IN POWER): minijack, sensitivity 0.3mV for 3 kilohm or lower impedance
Output	EARPHONE: minijack, for an 8-300 ohm earphone
Power requirements	DC IN 9 V jack accepts the supplied AC power adaptor.
Power consumption	600 mA
Dimensions	Approx. 133 × 61.5 × 230 mm (w/h/d) ($5\frac{1}{4} \times 2\frac{1}{2} \times 9\frac{1}{8}$ inches) not incl. projecting parts and controls
Weight	Approx. 0.8 kg (1 lb 12 oz)
Supplied accessories	HeadPhone (1) Foot control unit (1) AC power adaptor (1)

Design and specifications subject to change without notice.

Model Name Using Similar Mechanism	New
Tape Transport Mechanism Type	MB-2000-58

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

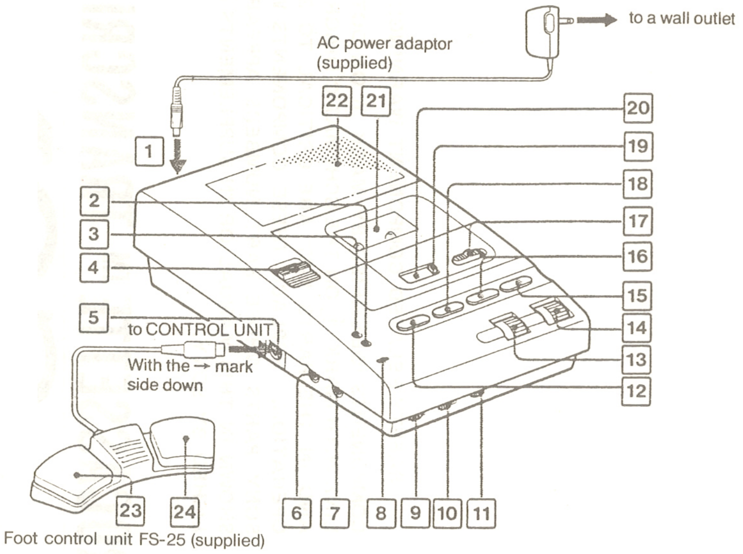
MICROFILM

MICROCASSETTE™ TRANSCRIBER

SONY®

SECTION 1
GENERAL

1-1. LOCATION AND FUNCTION OF CONTROLS


to a wall outlet
AC power adaptor (supplied)
22
21
20
19
18
17
16
15
14
13
12
1
2
3
4
5
to CONTROL UNIT
With the → mark side down
23
24
6
7
8
9
10
11
Foot control unit FS-25 (supplied)

1 **DC IN 9 V jack (external power input) jack**

2 **OPR (operation) indicator**
The indicator illuminates during tape operation.

3 **REC (record) indicator**
The indicator illuminates during recording.

4 **≜ EJECT (cassette eject) lever**

5 **CONTROL UNIT connector**

6 **MIC (external microphone) (PLUG IN POWER)**

7 **EARPHONE jack (minijack)**

8 **MIC (built-in microphone)**

9 **SPEED selector**
2.4 cm: A 60-minute recording can be made using both sides of the MC-60 Microcassette. This setting produces optimum sound and is recommended for normal use.
1.2 cm: A 120-minute recording can be made using both sides of the MC-60.

10 **REVERSE TIME (0/1/3) (autobackspace time) control**

11 **TONE control**
Slide toward H (high) to reinforce treble, and L (low) to weaken it.

12 **◀◀REW (rewind) button**

13 **SPEED CONTROL (tape speed control)**

14 **VOLUME control**

15 **▶▶ FF (fast forward) button**

16 **▶ PLAY button**

17 **Recording (STOP/REC) switch**

18 **■ STOP button**

19 **RESET button**
Press to reset the counters to zero.

20 **Tape counter**

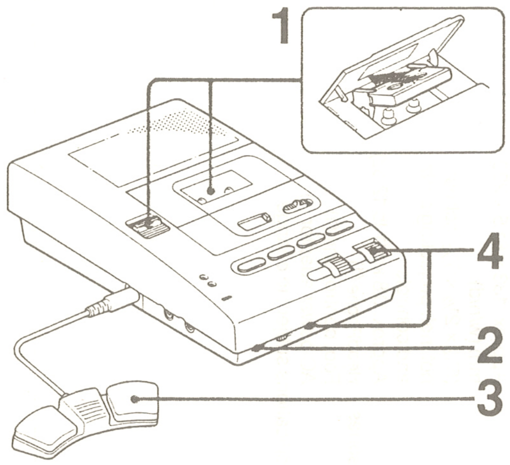
21 **Cassette compartment**

22 **Built-in speaker**

23 **Rewind pedal**

24 **Playback pedal**

1-2. TRANSCRIBING



Before operating the unit, connect the AC power adaptor to a wall outlet.

1 **Slide EJECT and insert a cassette.**

2 **Set SPEED to the same tape speed as that used for recording.**

3 **Keep the right side of the pedal depressed to listen to the tape.**

4 **Adjust VOLUME and TONE.**

To stop the tape, release the pedal.
You can control the unit with the buttons on itself as well.

Use of foot control unit
The foot control unit leaves your hands free, enabling you to control this transcriber with your foot.

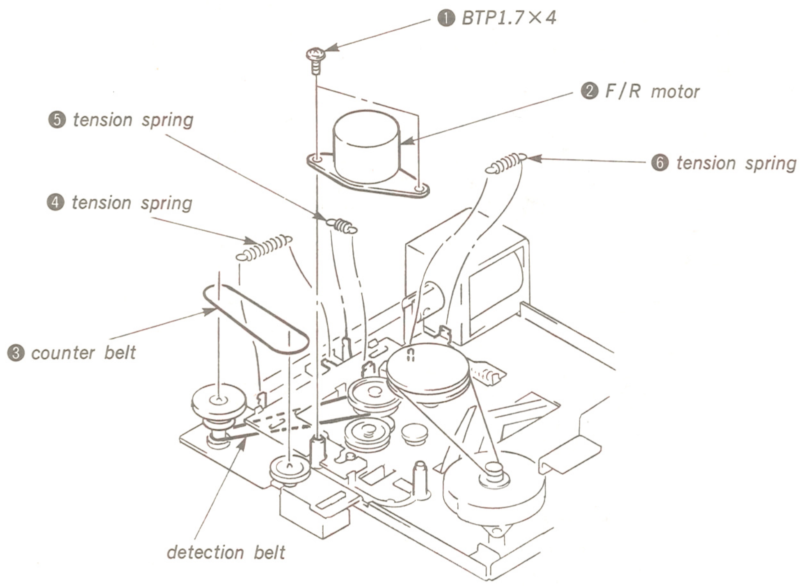
Auto backspace
The tape rewinds a little each time it is stopped and the last few recorded words can be reviewed when you resume listening. Adjust REVERSE TIME to the desired length (1 position: 1 second, 3 position: 3 seconds). At the 0 position, the tape stops without rewinding at all. This functions only when the foot control unit is used.

Speed control
The tape speed is adjustable with SPEED CONTROL. The tape runs at normal speed with the control set to the center click position.

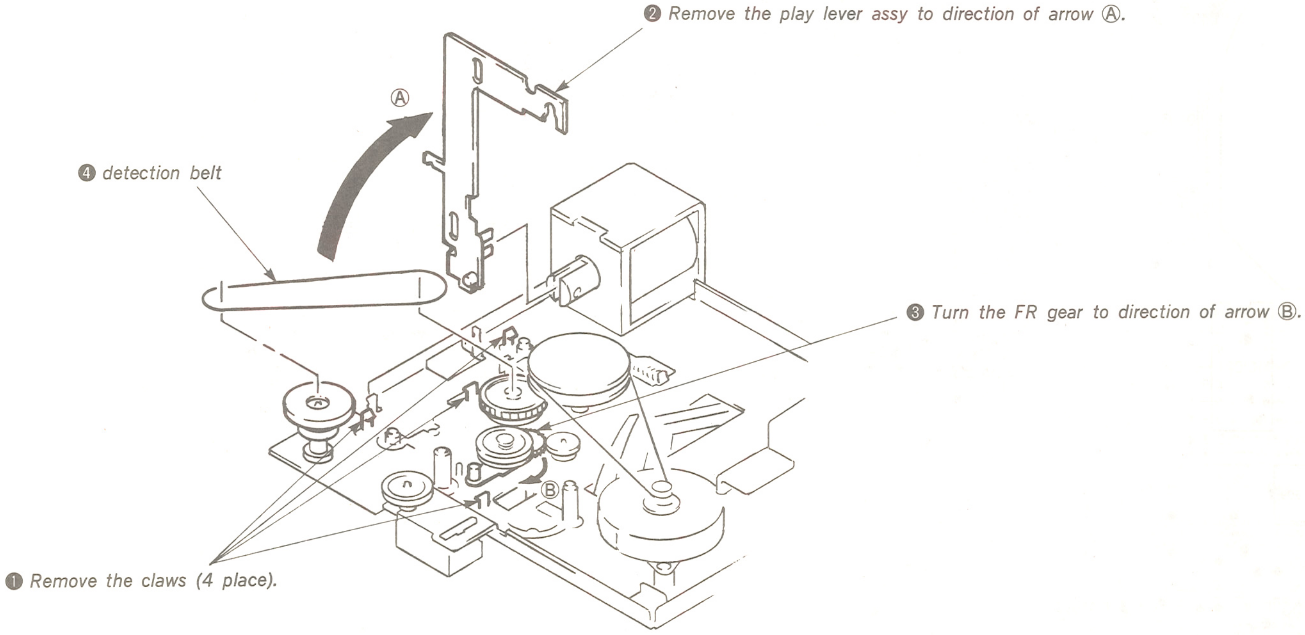
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

2-1. EXCHANGE OF DETECTION BELT (1)


❶ BTP1.7×4
❷ F/R motor
❺ tension spring
❻ tension spring
❹ tension spring
❸ counter belt
detection belt

2-2. EXCHANGE OF DETECTION BELT (2)


❷ Remove the play lever assy to direction of arrow Ⓐ.
Ⓐ
❹ detection belt
❸ Turn the FR gear to direction of arrow Ⓑ.
Ⓑ
❶ Remove the claws (4 place).

SECTION 3
MECHANICAL ADJUSTMENTS

PRECAUTION

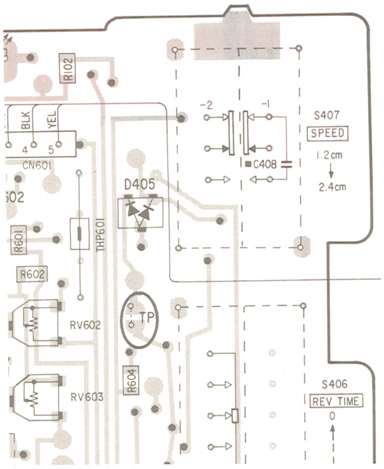
1. Clean the following parts with a denatured-alcohol-moistened swab :

record/playback/erase head	pinch roller
rubber belts	capstan
idlers	

2. Demagnetize the record/playback/erase head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Power Supply Voltage : 9V dc

Note : When performing mechanism deck rotation check opening the main board, solder the TP partion.
After the check, unsolder TP portion.



Torque Measurement

Torque	Meter Reading	Torque Meter
Forward	8—25g•cm (0.11—0.35oz•inch)	CQ-102M
Fast Forward and Rewind	40—95g•cm (0.56—1.32oz•inch)	CQ-201MA

Tape Tension Measurement

Meter	Meter Reading
CQ-403M	More than 40g (1.41oz)

SECTION 4
ELECTRICAL ADJUSTMENTS

PRECAUTION

1. The adjustments should be performed in the order given in this service manual.
2. Switches and controls should be set as follows unless otherwise specified.
   - VOLUME (RV101) control : max
   - SPEED CONTROL (RV601) : mechanical mid
   - TONE (S101) switch : HIGH
   - REC (S405) switch : STOP

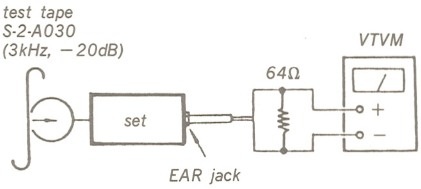
Test Tape

Type	Signal	Used for
S-2-A030	3kHz, −20dB	head azimuth adjustment
WS-24	3kHz, −10dB	tape speed adjustment

Record/playback/erase Head Azimuth Adjustment

Procedure :

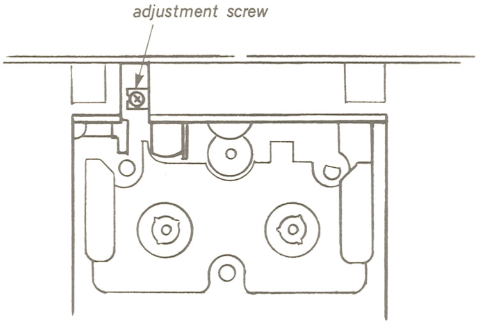
Mode : playback



Turn the adjustment screw to obtain the maximum reading on VTVM.

Note : Finish the screw adjustment with a turn in the clockwise direction.
After the adjustment, apply suitable locking compound to the adjustment screw.

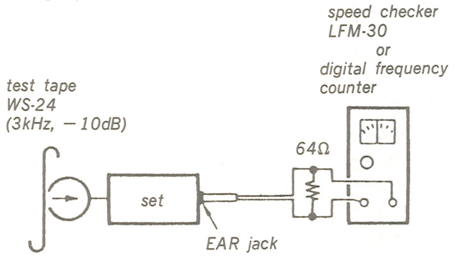
Adjustment Location :



Tape Speed Adjustment

Procedure :

Mode : playback


speed checker
LFM-30
or
digital frequency
counter
test tape
WS-24
(3kHz, −10dB)
64Ω
set
EAR jack

- Perform 2.4cm/s normal speed adjustment before 1.2cm/s normal speed adjustment.

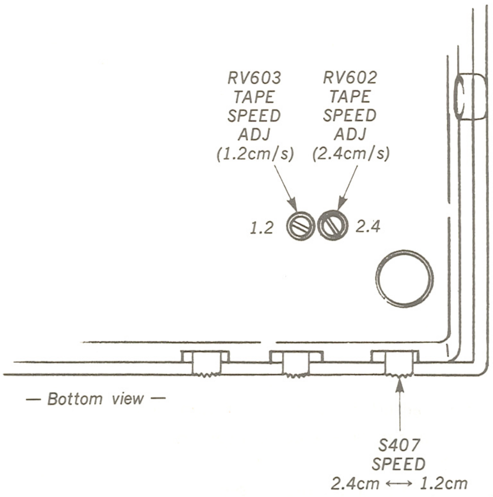
Normal speed	SPEED (S407)	Adjustment point	Frequency counter
2.4cm/s	2.4cm	RV602	2,985−3,015Hz
1.2cm/s	1.2cm	RV603	1,492−1,508Hz

Confirm that the reading on digital frequency counter is specification value as shown below.

SPEED CONTROL (RV601)	SPEED (S407)	Frequency counter
max	2.4cm	more than 4,500Hz
	1.2cm	more than 2,150Hz
min	2.4cm	less than 2,500Hz
	1.2cm	less than 1,250Hz

Frequency difference between the beginning and the end of the tape should be within ±1% (2.4cm/s normal speed : 30Hz, 1.2cm/s normal speed : 15Hz).

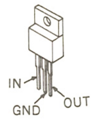
Adjustment Location :


RV603
TAPE
SPEED
ADJ
(1.2cm/s)
RV602
TAPE
SPEED
ADJ
(2.4cm/s)
1.2
2.4
— Bottom view —
S407
SPEED
2.4cm ⟷ 1.2cm

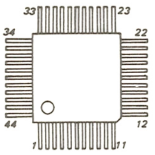
SECTION 5
DIAGRAMS

5-1. SEMICONDUCTOR LEAD LAYOUTS

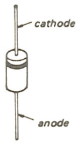
RC7805FA



μPD75402GB-514-3B4



10E2

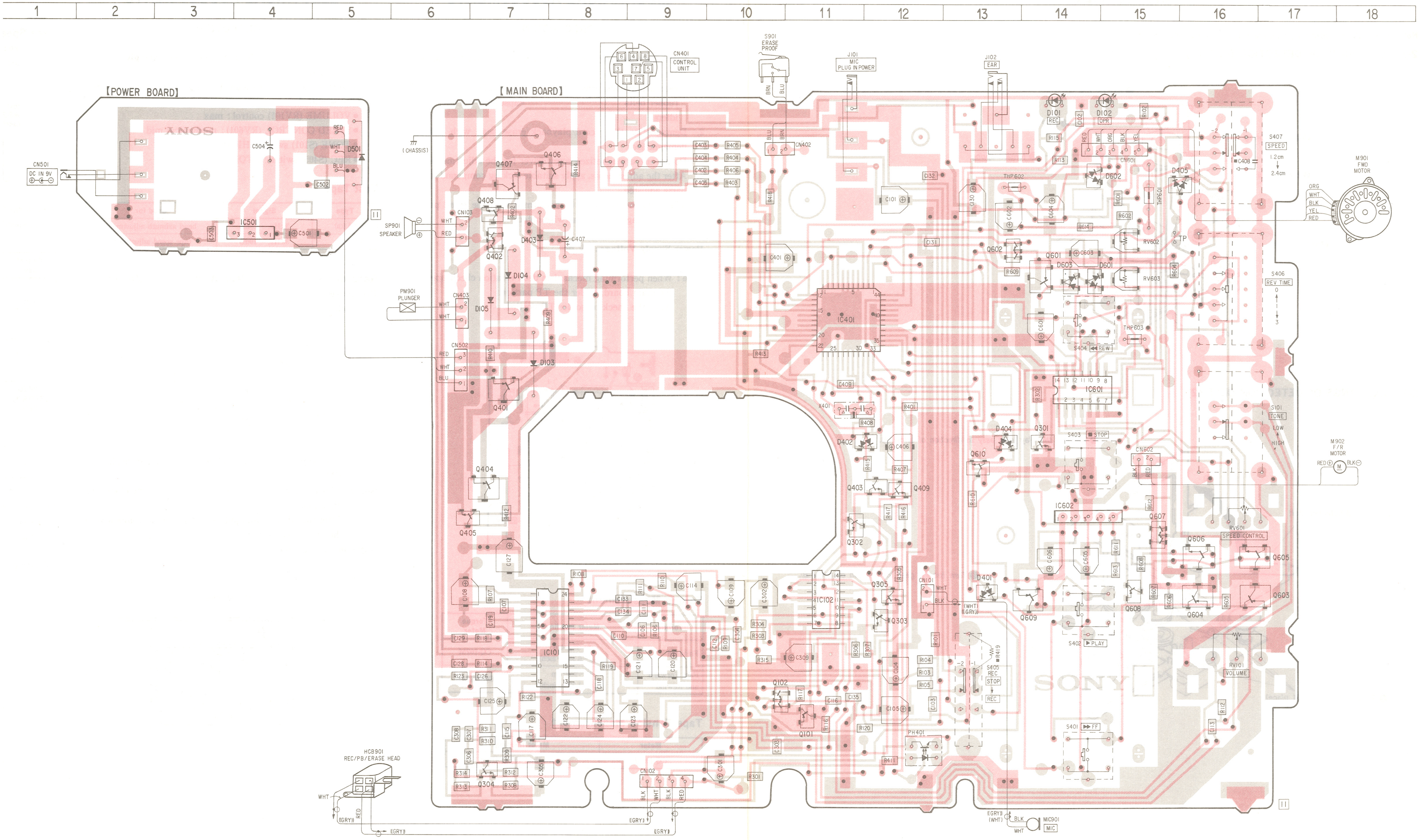


● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D101	B-14	Q304	J-7
D102	B-15	Q305	H-12
D103	E-7	Q401	E-7
D104	D-7	Q402	C-7
D105	D-7	Q403	F-12
D401	H-13	Q404	F-7
D402	F-11	Q405	G-6
D403	C-7	Q406	B-8
D404	F-13	Q407	B-7
D405	C-15	Q408	C-7
D501	B-5	Q409	F-12
D601	D-14	Q601	D-14
D602	B-14	Q602	C-13
D603	D-14	Q603	H-17
		Q604	H-16
IC101	H-8	Q605	G-17
IC102	H-11	Q606	G-16
IC401	D-11	Q607	G-15
IC501	C-4	Q608	H-15
IC601	E-14	Q609	H-14
IC602	G-14	Q610	F-13
PH401	J-12		
Q101	I-11		
Q102	I-10		
Q301	F-14		
Q302	G-11		
Q303	H-12		

- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ● : Through hole.
- ▨ : Pattern on the side which is seen.
- ▨ : Pattern of the rear side.

PRINTED WIRING BOARDS


1
2
3
4
5
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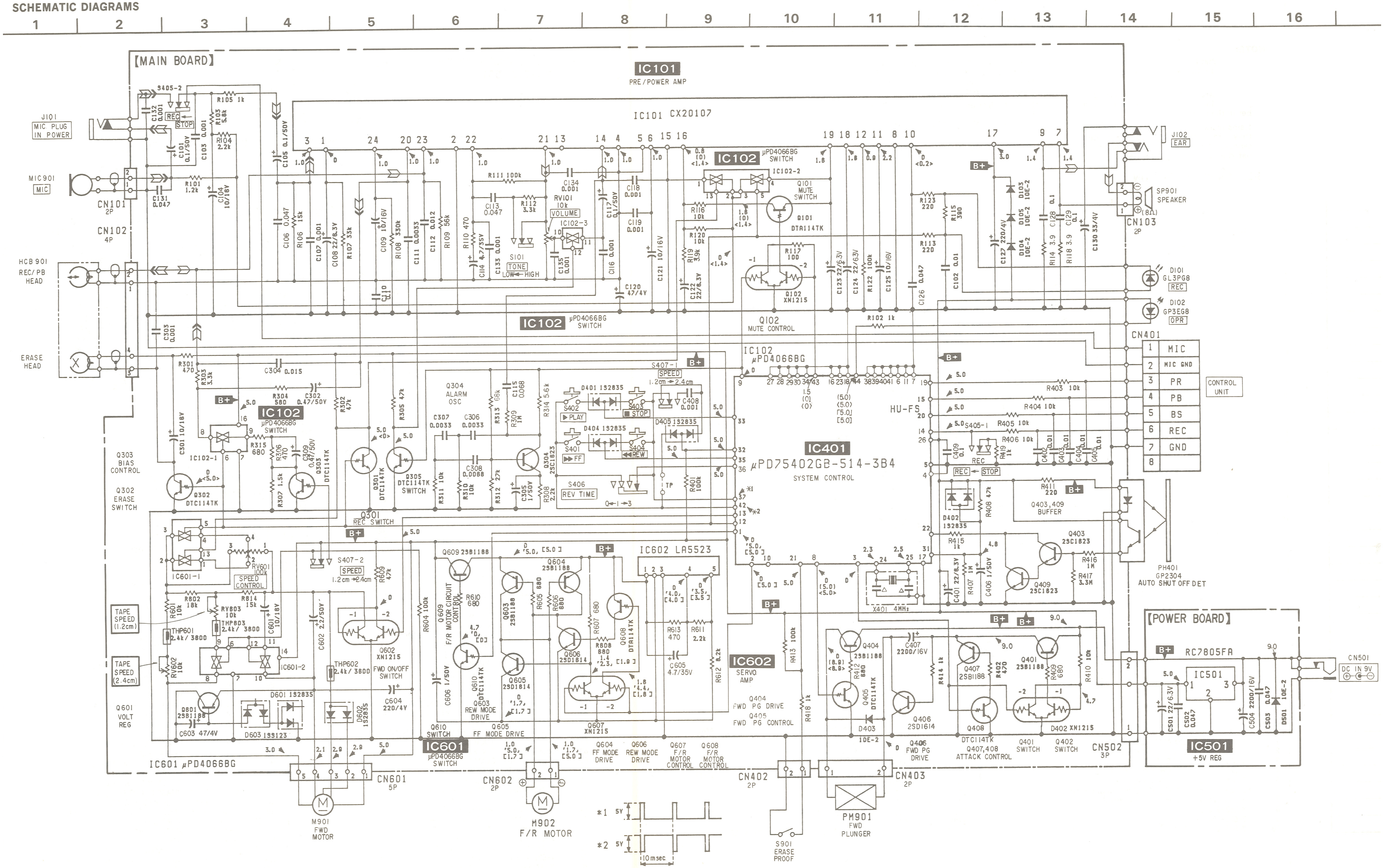
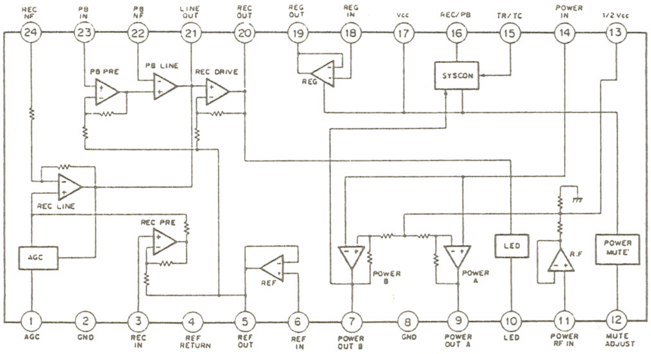
7
8
9
10
11
12
13
14
15
16
17
18
【POWER BOARD】
【MAIN BOARD】
CN501
DC IN 9V
C504
RED
WHT
BLU
D501
C502
IC501
C503
C501
(CHASSIS)
SP901
SPEAKER
PM901
PLUNGER
CN103
CN403
CN502
CN401
CONTROL UNIT
S901
ERASE PROOF
BRN
BLU
CN402
J101
MIC
PLUG IN POWER
J102
EAR
D101
REC
D102
OPR
S407
SPEED
1.2cm
2.4cm
M901
FWD MOTOR
ORG
WHT
BLK
YEL
RED
CN601
THP602
THP601
THP603
D405
D602
D603
D601
Q601
Q602
RV602
RV603
TP
S406
REV TIME
IC401
IC601
S404 ◀◀REW
S403 ■STOP
S101
TONE
LOW
HIGH
M902
F/R
MOTOR
CN602
IC602
RV601
SPEED CONTROL
Q605
Q606
Q607
Q603
Q604
Q608
Q609
Q610
S402 ▶PLAY
RV101
VOLUME
S405
REC
STOP
S401 ▶▶FF
PH401
Q301
D404
D401
D402
Q403
Q409
Q302
Q305
Q303
IC102
CN101
(WHT)
(GRY)
X401
Q406
Q407
Q408
Q402
D403
D104
D105
D103
Q401
Q404
Q405
IC101
Q102
Q101
Q304
CN102
HCB901
REC/PB/ERASE HEAD
MIC901
MIC
SONY

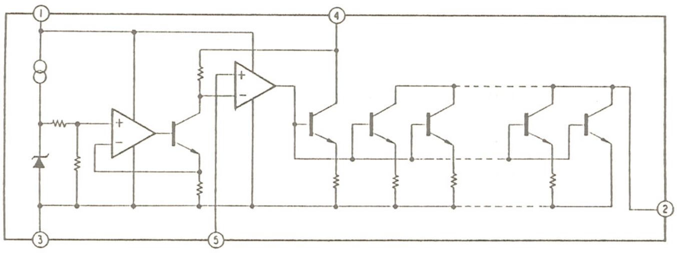

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
【MAIN BOARD】
IC101
PRE/POWER AMP
IC101 CX20107
IC102
μPD4066BG
SWITCH
IC102-2
IC102-3
IC102-1
Q101
MUTE SWITCH
Q101 DTA114TK
Q102 XN1215
Q102
MUTE CONTROL
J101
MIC PLUG IN POWER
MIC901
MIC
CN101
2P
CN102
4P
HCB901
REC/PB HEAD
ERASE HEAD
S405-2
REC
STOP
R105 1k
R103 5.6k
R104 2.2k
C132 0.001
C101 0.1/50V
C103 0.001
C105 0.1/50V
R101 1.2k
C131 0.047
C104 10/16V
C106 0.047
R106 15k
C107 0.001
C108 22/6.3V
R107 33k
C109 10/16V
R108 330k
C110
C111 0.0033
C112 0.012
R109 56k
R110 470
C114 4.7/35V
R111 100k
C113 0.047
R112 3.3k
C133 0.001
S101
TONE
LOW ← HIGH
C134 0.001
RV101 10k
VOLUME
C135 0.001
C117 0.1/50V
C116 0.001
C118 0.001
C119 0.001
C120 47/4V
C121 10/16V
C122 22/6.3V
R116 10k
R120 10k
R119 3.9k
R117 100
C123 22/6.3V
C124 22/6.3V
R122 100k
C125 10/16V
C126 0.047
C102 0.01
R123 220
R115 390
R113 220
R102 1k
D103 10E-2
D105 10E-2
D104 10E-2
C127 220/4V
C128 0.1
C129 0.1
R114 3.9
R118 3.9
C130 33/4V
J102
EAR
SP901
SPEAKER
(8Ω)
CN103
2P
D101
GL3PG8
REC
D102
GP3EG8
OPR
CN401
MIC
MIC GND
PR
PB
BS
REC
GND
CONTROL UNIT
C303 0.001
R301 470
R303 3.3k
C304 0.015
R304 560
C302 0.47/50V
R302 47k
C301 10/16V
R315 680
R306 470
C309 0.47/50V
Q303
Q303 BIAS CONTROL
Q302 ERASE SWITCH
Q302 DTC114TK
R307 1.5k
Q301 DTC114TK
Q301 REC SWITCH
R305 47k
Q305 DTC114TK SWITCH
Q304 ALARM OSC
C307 0.0033
C306 0.0033
C308 0.0068
R311 10k
R310 10k
R312 27k
R313 68k
R309 1M
C115 0.068
R314 5.6k
Q304 2SC1823
C305 1/50V
R308 2.2k
S407-1
SPEED
1.2cm ↔ 2.4cm
D401 1SS235
S402
PLAY
S403
STOP
C408 0.001
D404 1SS235
D405 1SS235
S401
FF
S404
REW
S406
REV TIME
TP
R401 100k
IC401
μPD75402GB-514-3B4
SYSTEM CONTROL
HU-FS
R403 10k
R404 10k
S405-1
R405 10k
R406 10k
R419 1k
C409 0.1
C402 0.01
C403 0.01
C404 0.01
C405 0.01
R411 220
Q403,409 BUFFER
D402 1SS235
R408 47k
R415 1k
Q403 2SC1823
R416 1M
R417 3.3M
C401 22/6.3V
R407 1M
C406 1/50V
Q409 2SC1823
X401 4MHz
PH401 GP2304
AUTO SHUT OFF DET
IC601-1
RV601 100k
SPEED CONTROL
S407-2
SPEED
1.2cm ↔ 2.4cm
R609 47k
R802 18k
RV803 10k
R814 15k
THP603 2.4k/3800
C601 10/16V
R601 10k
THP601 2.4k/3800
TAPE SPEED (1.2cm)
TAPE SPEED (2.4cm)
RV602 10k
IC601-2
C602 22/50V
Q602 XN1215
THP602 2.4k/3800
FWD ON/OFF SWITCH
Q601 VOLT REG
Q801 2SB1188
C603 47/4V
D601 1SS235
D603 1SS123
D602 1SS235
C604 220/4V
R604 100k
Q609 2SB1188
Q609 F/R MOTOR CIRCUIT CONTROL
R610 680
C606 1/50V
Q610 DTC114TK
Q603 REW MODE DRIVE
Q610 SWITCH
Q603 2SB1188
R605 680
R606 680
Q604 2SB1188
Q606 2SD1614
Q605 2SD1614
Q605 FF MODE DRIVE
R607 680
R808 680
Q608 DTA114TK
Q607 XN1215
IC602 LA5523
R613 470
R611 2.2k
C605 4.7/35V
R612 8.2k
IC602
SERVO AMP
Q404 FWD PG DRIVE
Q405 FWD PG CONTROL
R413 100k
R418 1k
Q404 2SB1188
R412 680
Q405 DTC114TK
D403 10E-2
C407 2200/16V
R414 1k
Q406 2SD1614
Q406 FWD PG DRIVE
Q407 2SB1188
R402 470
Q401 2SB1188
R409 680
R410 10k
Q408 DTC114TK
Q407,408 ATTACK CONTROL
D402 XN1215
Q401 SWITCH
Q402 SWITCH
CN502
3P
【POWER BOARD】
RC7805FA
IC501
C501 22/6.3V
C502 0.047
C504 2200/16V
C503 0.047
D501 10E-2
IC501
+5V REG
CN501
DC IN 9V
IC601 μPD4066BG
IC601
μPD4066BG SWITCH
CN601
5P
M901
FWD MOTOR
CN602
2P
M902
F/R MOTOR
Q604 FF MODE DRIVE
Q606 REW MODE DRIVE
Q607 F/R MOTOR CONTROL
Q608 F/R MOTOR CONTROL
CN402
2P
S901
ERASE PROOF
CN403
2P
PM901
FWD PLUNGER
*1 5V
*2 5V
10msec
B+

● IC Block Diagram

IC101 CX20107


REC NF
PB IN
PB NF
LINE OUT
REC OUT
REG OUT
REG IN
Vcc
REC/PB
TR/TC
POWER IN
1/2 Vcc
24
23
22
21
20
19
18
17
16
15
14
13
PB PRE
PB LINE
REC DRIVE
REG
SYSCON
REC LINE
REC PRE
AGC
REF
POWER B
POWER A
LED
R.F
POWER MUTE
1
2
3
4
5
6
7
8
9
10
11
12
AGC
GND
REC IN
REF RETURN
REF OUT
REF IN
POWER OUT B
GND
POWER OUT A
LED
POWER RF IN
MUTE ADJUST

IC602 LA5523



Note:

- All capacitors are in μF unless otherwise noted. pF: $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$W or less unless otherwise specified.
- Power voltage is dc 9 V and fed with regulated dc power supply from external power voltage jack.
- Voltage are dc with respect to ground under no-signal conditions.

  no mark : PLAY
  < > : REC
  ⌜ ⌟ : FF
  [ ] : REW
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.

  ▷ : PB
  ▷▷ : REC

5-4. EXPLANATION OF IC401 (μPD75402GB-514-3B4)

Pin No.	Symbol	I/O	Description
1	P30	O	FF/REW motor ON/OFF signal
2	P31	O	FF/REW motor normal turn/reverse turn control signal
3	P32	O	Plunger suction signal
4	NC	—	
5	V_{SS}	—	GND
6	NC	—	
7	NC	—	
8	P33	O	Plunger holding signal
9	P60	O	Alarm signal
10	P61	—	
11	NC	—	
12	P62	O	REC signal
13	P63	O	FWD motor ON/OFF signal
14	P20	I/O	REC key detection
15	P21	I	PLAY key
16	NC	—	
17	V_{SS}	—	GND
18	NC	—	
19	P22/PCL	I/O	Partial reverse key detection
20	P23	I/O	Back space key detection
21	P10/INT0	I/O	Erase proof detection
22	P12/INT2	I	Reel turn detecting photosensor signal
23	NC	—	
24	X2	I	clock
25	X1	I	clock
26	V_{DD}	—	Power supply
27	NC	—	
28	NC	—	
29	NC	—	
30	NC	—	
31	$\overline{\text{RESET}}$	I	Reset signal
32	P00	I	Matrix system, key detection PLAY STOP FF REW, TAPE SPEED 1.2/2.4 REV TIME 0/1/3 TP (Pattern bridge stops END detection, and it Permits repair and operational check while floating the board.)
33	P01/$\overline{\text{SCK}}$		
35	P02/SO/SB0		
36	P03/SI		
37	P50	O	
42	P51		
34	NC	—	
38	NC	—	
39	NC	—	
40	NC	—	
41	NC	—	
43	P52	O	Mute signal
44	P53	O	Operation LED lighting

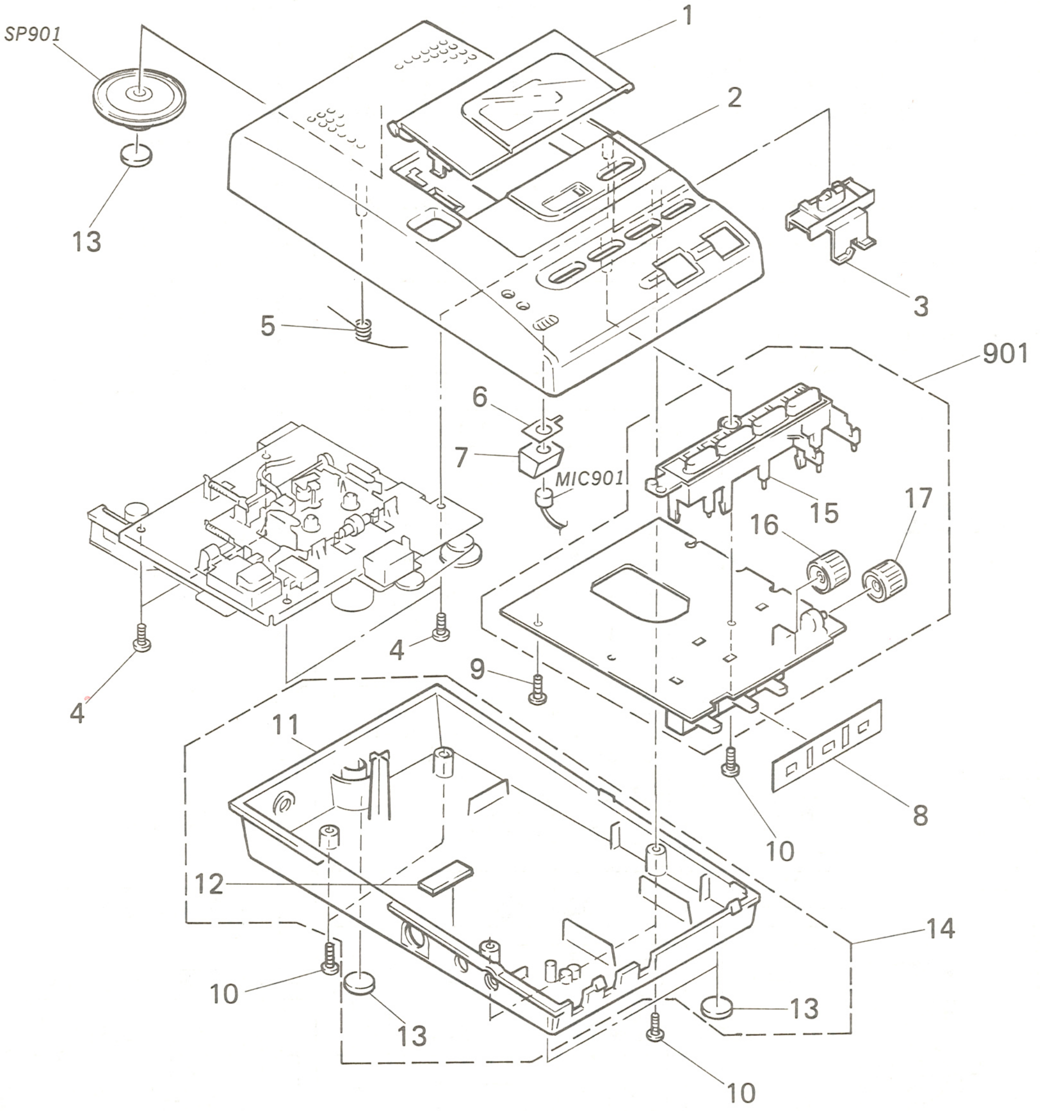
SECTION 6
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:

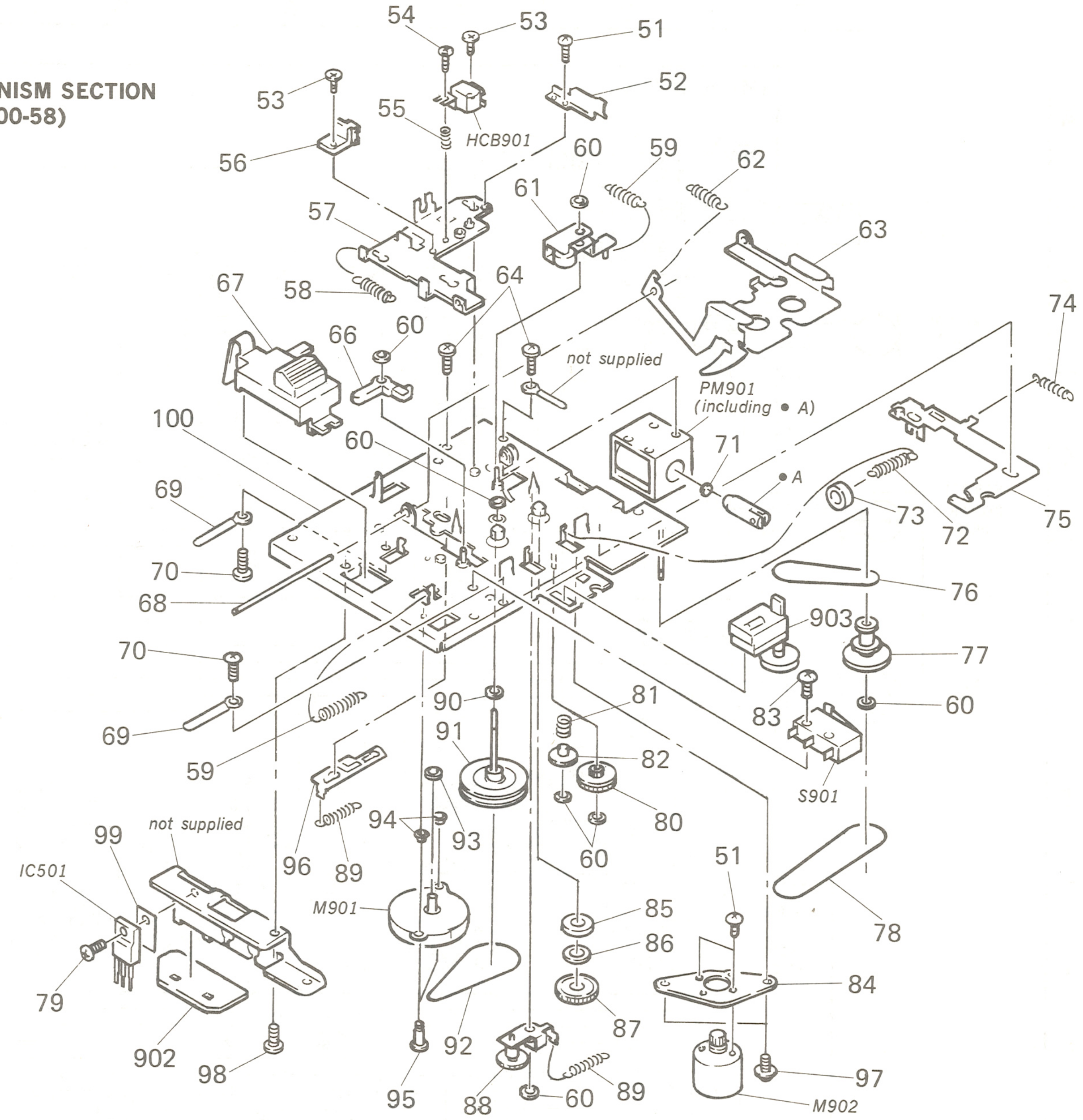
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts Color

6-1. CABINET SECTION



Ref.No	Part No.	Description	Remarks
1	X-3353-902-1	LID ASSY, CASSETTE	
2	X-3353-901-1	CABINET (UPPER) ASSY	
3	3-353-902-01	KNOB (REC)	
4	7-685-133-19	SCREW +P 2.6X6 TYPE1	
5	3-335-193-01	SPRING, CASSETTE	
6	*3-353-905-01	SHEET, ADHESIVE, MICROPHONE	
7	*3-353-974-01	CUSHION (MICROPHONE)	
8	3-353-906-01	COVER, SWITCH	
9	7-621-770-87	SCREW +P 2.6X5	
10	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
11	3-353-915-01	CABINET (LOWER)	
12	9-911-815-01	CUSHION, METER	
13	3-319-288-01	FOOT	
14	X-3353-912-1	CABINET (LOWER) ASSY	11-13
15	3-353-904-01	BUTTON	
16	3-353-973-01	KNOB (SPEED)	
17	3-353-916-01	KNOB (VOLUME)	
901	*A-3015-774-A	MOUNTED PCB, MAIN	15-17
SP901	1-503-637-11	SPEAKER	
MIC901	1-542-092-11	MICROPHONE, ELECTRET CONDENSER	

6-2. MECHANISM SECTION (MB-2000-58)


54
53
51
53
52
55
HCB901
56
60
59
62
61
57
63
67
58
64
74
66
60
not supplied
PM901 (including ● A)
100
60
71
● A
69
73
72
75
70
68
76
903
70
77
83
60
90
81
91
82
69
59
S901
94
93
80
99
not supplied
96
89
60
IC501
51
M901
85
86
78
84
79
87
902
92
98
97
95
88
60
89
M902

Ref.No	Part No.	Description	Remarks
51	7-627-552-28	SCREW,PRECISION +P 1.7X2	
52	*3-353-957-01	GUIDE, TAPE	
53	3-318-205-01	SCREW (1.7X2.5)	
54	3-353-979-01	SCREW	
55	3-353-958-01	SPRING, COMPRESSION	
56	*3-353-959-01	GUIDE (S), TAPE	
57	*X-3353-909-1	CHASSIS ASSY, HEAD	
58	3-353-964-01	SPRING, TENSION	
59	3-353-953-01	SPRING, TENSION	
60	3-578-242-11	WASHER	
61	X-3353-906-1	PINCH LEVER ASSY	
62	3-335-155-01	SPRING, TENSION(POWER TENSION)	
63	X-3335-109-1	HOLDER COMPLETE ASSY, CASSETTE	
64	7-682-646-09	SCREW +PS 3X5	
66	*3-335-167-01	LEVER, ERASING PROTECTION	
67	3-353-903-01	KNOB (EJECT)	
68	*3-353-960-01	PIN, PARALLEL	
69	*2-277-426-01	CLAMP	
70	7-621-255-15	SCREW +P 2X3	
71	4-879-274-41	SPACER	
72	3-353-956-01	SPRING, TENSION	
73	*3-335-116-01	ROLLER, EMP	
74	3-353-954-01	SPRING, TENSION	
75	*X-3353-908-1	LEVER ASSY, PLAY	
76	3-353-951-01	BELT, DETECTION	
77	X-3353-911-1	PULLEY (RELAY) ASSY	
78	3-353-952-01	BELT, COUNTER	
79	7-621-770-67	SCREW B 2.6X6	
80	X-3335-135-1	LIMITER ASSY, FR	
81	3-335-230-02	SPRING, COMPRESSION	
82	3-335-121-01	GEAR, FR	
83	7-621-257-55	SCREW +P 2.3X8	
84	*3-353-962-01	BRACKET (FR MOTOR)	
85	3-335-126-01	PLATE, MAGNET	
86	3-335-123-01	SPACER (M) (T=0.1)	
86	3-335-123-11	SPACER (M) (T=0.2)	
86	3-335-123-21	SPACER (M) (T=0.3)	
87	X-3335-107-1	LIMITER (B) ASSY, FWD	
88	X-3353-907-1	GEAR ASSY, IDLER	
89	3-353-955-01	SPRING, TENSION	
90	3-701-436-01	WASHER, 1.6	
91	X-3353-910-1	WHEEL ASSY, CAPSTAN	
92	3-353-963-01	BELT, CAPSTAN	
93	3-353-972-01	RUBBER, BUSHING	
94	*3-335-208-01	CUSHION, MOTOR	
95	3-353-961-01	SCREW (M1.4), STEP	
96	*3-353-950-01	LEVER (SAFETY)	
97	3-342-759-41	SCREW (B1.7X4), TAPPING	
98	7-621-770-87	SCREW +P 2.6X5	
99	4-391-336-01	SHEET, INSULATING	
100	*X-3353-903-1	CHASSIS (OUTSERT) ASSY	
902	*1-631-078-11	PC BOARD, POWER	
903	1-548-599-21	COUNTER, TAPE (SMALL TYPE)	
IC501	8-759-982-05	IC RC7805FA	
M901	1-541-691-11	MOTOR (FWD)	
M902	1-541-685-11	MOTOR, DC (F/R)	
PM901	1-454-486-11	SOLENOID, PLUNGER	
S901	1-554-385-00	SWITCH, MICRO (ERASE PROOF)	
HCB901	1-543-638-11	HEAD, MAGNETIC (REC/PB/ERASE)	

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description			
901	*A-3015-774-A	MOUNTED PCB, MAIN			
902	*1-631-078-11	PC BOARD, POWER			
903	1-548-599-21	COUNTER, TAPE (SMALL TYPE)			
		CAPACITOR			
C101	1-126-187-11	ELECT CHIP	0.1MF	20%	50V
C102	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C103	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C104	1-124-779-00	ELECT CHIP	10MF	20%	16V
C105	1-126-187-11	ELECT CHIP	0.1MF	20%	50V
C106	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C107	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C108	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C109	1-124-779-00	ELECT CHIP	10MF	20%	16V
C110	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C111	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V
C112	1-163-022-00	CERAMIC CHIP	0.012MF	10%	50V
C113	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C114	1-126-198-11	ELECT CHIP	4.7MF	20%	35V
C115	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C116	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C117	1-126-187-11	ELECT CHIP	0.1MF	20%	50V
C118	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C119	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C120	1-126-208-11	ELECT CHIP	47MF	20%	4V
C121	1-124-779-00	ELECT CHIP	10MF	20%	16V
C122	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C123	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C124	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C125	1-124-779-00	ELECT CHIP	10MF	20%	16V
C126	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C127	1-126-246-11	ELECT CHIP	220MF	20%	4V
C128	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C129	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C130	1-126-207-11	ELECT CHIP	33MF	20%	4V
C131	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C132	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C133	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C134	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C135	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C301	1-124-779-00	ELECT CHIP	10MF	20%	16V
C302	1-126-191-11	ELECT CHIP	0.47MF	20%	50V
C303	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C304	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C305	1-126-193-11	ELECT CHIP	1MF	20%	50V
C306	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V
C307	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V
C308	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C309	1-126-191-11	ELECT CHIP	0.47MF	20%	50V
C401	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C402	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C403	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C404	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C405	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C406	1-126-193-11	ELECT CHIP	1MF	20%	50V
C407	1-124-556-11	ELECT	2200MF	20%	16V
C408	1-102-074-00	CERAMIC	0.001MF	10%	50V
C409	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C501	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C502	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C503	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C504	1-124-556-11	ELECT	2200MF	20%	16V
C601	1-124-779-00	ELECT CHIP	10MF	20%	16V
C602	1-126-195-11	ELECT CHIP	2.2MF	20%	50V
C603	1-126-208-11	ELECT CHIP	47MF	20%	4V
C604	1-126-246-11	ELECT CHIP	220MF	20%	4V
C605	1-126-198-11	ELECT CHIP	4.7MF	20%	35V
C606	1-126-193-11	ELECT CHIP	1MF	20%	50V
CN101	*1-506-467-11	PIN, CONNECTOR 2P			
CN102	*1-506-469-11	PIN, CONNECTOR 4P			
CN103	*1-506-467-11	PIN, CONNECTOR 2P			
CN401	1-568-229-11	SOCKET, CONNECTOR 8P (CONTROL UNIT)			
CN402	*1-506-467-11	PIN, CONNECTOR 2P			
CN403	*1-506-467-11	PIN, CONNECTOR 2P			
CN501	1-562-961-11	JACK (DC IN 9V)			
CN502	*1-506-468-11	PIN, CONNECTOR 3P			
CN601	*1-506-470-11	PIN, CONNECTOR 5P			
CN602	*1-506-467-11	PIN, CONNECTOR 2P			
D101	8-719-812-41	DIODE TLR124			
D102	8-719-938-67	DIODE GL3EG8			
D103	8-719-200-02	DIODE 10E2			
D104	8-719-200-02	DIODE 10E2			
D105	8-719-200-02	DIODE 10E2			
D401	8-719-100-03	DIODE 1S2835			
D402	8-719-100-03	DIODE 1S2835			
D403	8-719-200-02	DIODE 10E2			
D404	8-719-100-03	DIODE 1S2835			
D405	8-719-100-03	DIODE 1S2835			
D501	8-719-200-02	DIODE 10E2			
D601	8-719-100-03	DIODE 1S2835			
D602	8-719-100-03	DIODE 1S2835			
D603	8-719-800-76	DIODE 1SS123			
IC101	8-752-010-71	IC CX20107			
IC102	8-759-106-23	IC UPD4066BG			
IC401	8-759-146-07	IC UPD75402GB-514-3B4			
IC501	8-759-982-05	IC RC7805FA			
IC601	8-759-106-23	IC UPD4066BG			
IC602	8-759-801-12	IC LA5523			
J101	1-566-740-11	JACK (MIC PLUG IN POWER)			
J102	1-507-896-00	JACK, HEADPHONE (EAR)			
PH401	8-719-913-40	DIODE GP-2S04			
Q101	8-729-900-51	TRANSISTOR DTA114TK			
Q102	8-729-403-17	TRANSISTOR XN1215			
Q301	8-729-902-99	TRANSISTOR DTC114TK			
Q302	8-729-902-99	TRANSISTOR DTC114TK			
Q303	8-729-902-99	TRANSISTOR DTC114TK			
Q304	8-729-100-66	TRANSISTOR 2SC1623-L6			

Ref.No	Part No.	Description			
Q305	8-729-902-99	TRANSISTOR DTC114TK			
Q401	8-729-807-33	TRANSISTOR 2SB1123			
Q402	8-729-403-17	TRANSISTOR XN1215			
Q403	8-729-100-66	TRANSISTOR 2SC1623-L6			
Q404	8-729-807-33	TRANSISTOR 2SB1123			
Q405	8-729-902-99	TRANSISTOR DTC114TK			
Q406	8-729-807-16	TRANSISTOR 2SD1621-R			
Q407	8-729-807-33	TRANSISTOR 2SB1123			
Q408	8-729-902-99	TRANSISTOR DTC114TK			
Q409	8-729-100-66	TRANSISTOR 2SC1623-L6			
Q601	8-729-807-33	TRANSISTOR 2SB1123			
Q602	8-729-403-17	TRANSISTOR XN1215			
Q603	8-729-807-33	TRANSISTOR 2SB1123			
Q604	8-729-807-33	TRANSISTOR 2SB1123			
Q605	8-729-807-16	TRANSISTOR 2SD1621-R			
Q606	8-729-807-16	TRANSISTOR 2SD1621-R			
Q607	8-729-403-17	TRANSISTOR XN1215			
Q608	8-729-900-51	TRANSISTOR DTA114TK			
Q609	8-729-807-33	TRANSISTOR 2SB1123			
Q610	8-729-902-99	TRANSISTOR DTC114TK			
		RESISTOR			
R101	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R102	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R103	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R104	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R105	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R106	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R107	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R108	1-216-109-00	METAL GLAZE	330K	5%	1/10W
R109	1-216-091-00	METAL GLAZE	56K	5%	1/10W
R110	1-216-041-00	METAL GLAZE	470	5%	1/10W
R111	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R112	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R113	1-216-033-00	METAL GLAZE	220	5%	1/10W
R114	1-216-306-11	METAL GLAZE	3.9	5%	1/10W
R115	1-216-039-00	METAL GLAZE	390	5%	1/10W
R116	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R117	1-216-025-00	METAL GLAZE	100	5%	1/10W
R118	1-216-306-11	METAL GLAZE	3.9	5%	1/10W
R119	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R120	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R122	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R123	1-216-033-00	METAL GLAZE	220	5%	1/10W
R301	1-216-041-00	METAL GLAZE	470	5%	1/10W
R302	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R303	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R304	1-216-043-00	METAL GLAZE	560	5%	1/10W
R305	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R306	1-216-041-00	METAL GLAZE	470	5%	1/10W
R307	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R308	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R309	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R310	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R311	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R312	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R313	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R314	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R315	1-216-045-00	METAL GLAZE	680	5%	1/10W
R401	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R402	1-216-041-00	METAL GLAZE	470	5%	1/10W
R403	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R404	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R405	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R406	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R407	1-216-121-00	METAL GLAZE	1M	5%	1/10W

Ref.No	Part No.	Description			
R408	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R409	1-216-045-00	METAL GLAZE	680	5%	1/10W
R410	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R411	1-216-033-00	METAL GLAZE	220	5%	1/10W
R412	1-216-045-00	METAL GLAZE	680	5%	1/10W
R413	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R414	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R415	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R416	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R417	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W
R418	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R419	1-249-417-11	CARBON	1K	5%	1/4W
R601	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R602	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R604	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R605	1-216-045-00	METAL GLAZE	680	5%	1/10W
R606	1-216-045-00	METAL GLAZE	680	5%	1/10W
R607	1-216-045-00	METAL GLAZE	680	5%	1/10W
R608	1-216-045-00	METAL GLAZE	680	5%	1/10W
R609	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R610	1-216-045-00	METAL GLAZE	680	5%	1/10W
R611	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R612	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R613	1-216-041-00	METAL GLAZE	470	5%	1/10W
R614	1-216-077-00	METAL GLAZE	15K	5%	1/10W
RV101	1-238-646-11	RES, VAR, CARBON 10K (VOLUME)			
RV601	1-238-627-11	RES, VAR, CARBON 100K (SPEED CONTROL)			
RV602	1-238-676-11	RES, ADJ, METAL GLAZE 10K			
RV603	1-238-676-11	RES, ADJ, METAL GLAZE 10K			
S101	1-552-334-00	SWITCH, BAND CHANGER (TONE)			
S401	1-571-528-11	SWITCH, KEY BOARD (▶▶FF)			
S402	1-571-528-11	SWITCH, KEY BOARD (▶PLAY)			
S403	1-571-528-11	SWITCH, KEY BOARD (■STOP)			
S404	1-571-528-11	SWITCH, KEY BOARD (◀◀REW)			
S405	1-554-481-00	SWITCH, SLIDE (REC)			
S406	1-554-277-00	SWITCH, SLIDE (REV TIME)			
S407	1-552-334-00	SWITCH, BAND CHANGER (SPEED)			
THP601	1-806-367-11	THERMISTOR (POSITIVE)			
THP602	1-806-367-11	THERMISTOR (POSITIVE)			
THP603	1-806-367-11	THERMISTOR (POSITIVE)			
X401	1-567-772-11	VIBRATOR, CERAMIC (4MHz)			

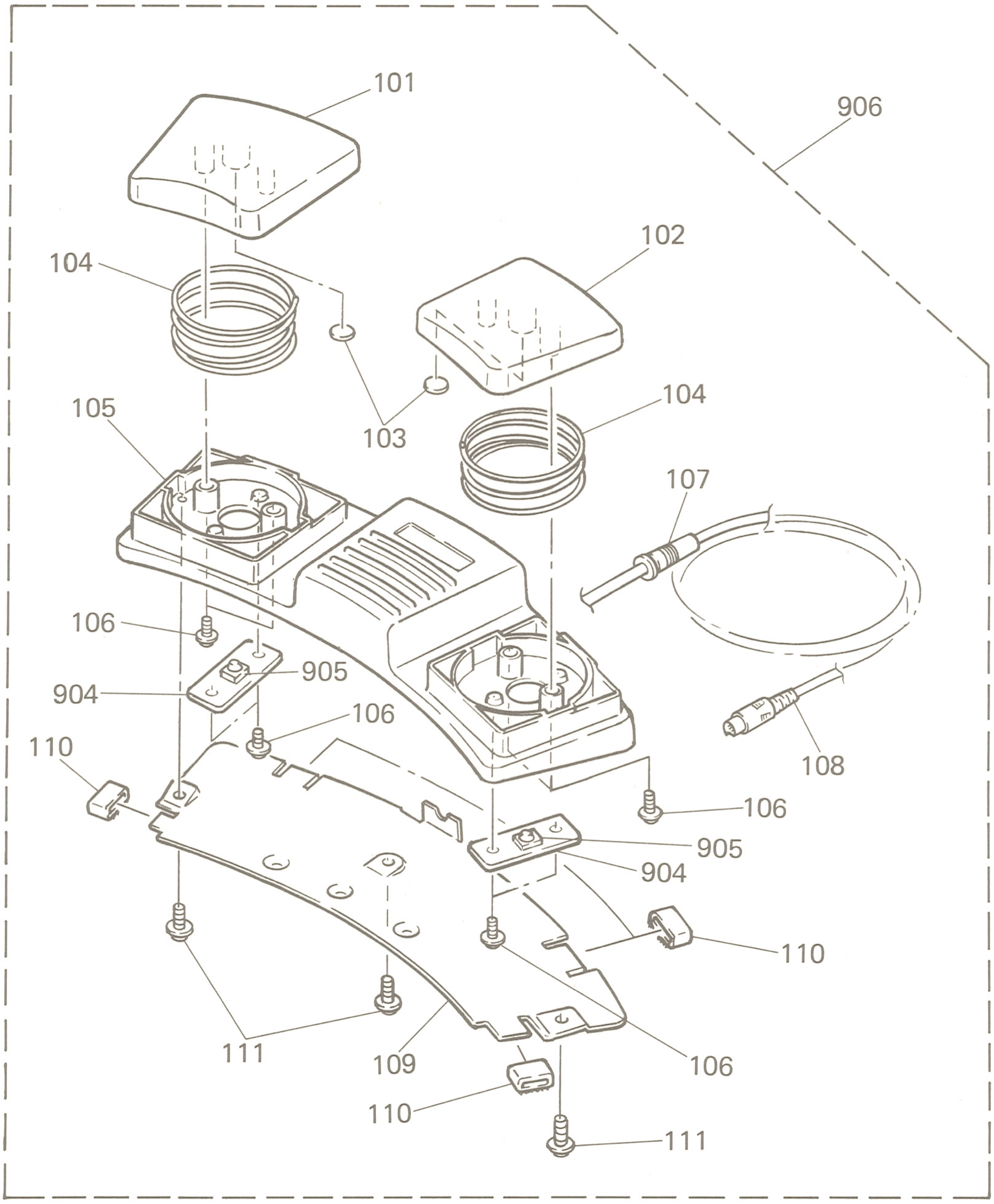
Part No.	Description	Remarks
	ACCESSORIES & PACKING MATERIALS *	
⚠.1-463-705-11	(AEP)....ADAPTOR, AC (AC-930)	
⚠.1-463-700-11	(UK)....ADAPTOR, AC (AC-930A)	
⚠.1-463-884-11	(US)....ADAPTOR, AC (AC-930B)	
3-336-617-01	BAG, PROTECTION	
*3-353-968-01	CUSHION (UPPER)	
*3-353-969-01	CUSHION (LOWER)	
*3-353-970-01	(US)....INDIVIDUAL CARTON	
*3-353-978-01	(AEP, UK)....INDIVIDUAL CARTON	
3-750-533-21	MANUAL, INSTRUCTION	
3-750-533-11	(AEP, UK)....MANUAL, INSTRUCTION	
8-916-911-30	CONTROL UNIT, FOOT FS-25(U)	
8-952-313-90	HEADPHONE MDR-005L/B SET	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 8
FOOT CONTROL UNIT (FS-25)

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts' Color



Ref.No	Part No.	Description	Remarks
101	2-263-525-01	PEDAL (LEFT)	
102	2-263-525-11	PEDAL (RIGHT)	
103	3-319-288-01	FOOT	
104	2-263-527-01	SPRING, COMPRESSION	
105	2-263-526-01	CASE	
106	4-880-333-01	SCREW, +PTPWH 2.6X5	
107	3-143-524-11	BUSHING, CABLE	
108	1-575-031-11	CORD (WITH CONNECTOR)	
109	2-263-524-01	PLATE, BOTTOM	
110	3-143-712-01	FOOT, RUBBER	
111	3-703-135-11	SCREW, +PTTWH 3X8	
904	*1-631-129-11	PC BOARD, SW	
905	1-571-315-11	SWITCH, KEY BOARD	
906	8-916-911-30	CONTROL UNIT, FOOT FS-25(U)	